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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/817,080	04/02/2004	Andrew Daniel Campany	ITMF-PAC100US	2147
23122	7590	11/02/2005	EXAMINER	
RATNERPRESTIA P O BOX 980 VALLEY FORGE, PA 19482-0980			ELLIS, SUEZU Y	
			ART UNIT	PAPER NUMBER
			2878	

DATE MAILED: 11/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/817,080

Applicant(s)

CAMPANY ET AL.

Examiner

Suezu Ellis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 16-20 and 23-27 is/are rejected.
- 7) ☒ Claim(s) 10-15, 21 and 22 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

The information disclosure statement (IDS) submitted on April 2, 2004 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7-9, 25 and 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 7 and 25 recite the limitation "the interrupter switch signal transmitters" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim. Further in claim 7 and 25, the wording is confusing. The phrase "amount of the source emission detected" seems awkward. It is unclear as to how the interrupter switch signal transmitters indicated the amount of emitted light. Does applicant intend that detectors indicate the amount of emitted light or that the interrupter switches transmit a signal that is indicative of the amount of detected light? Please clarify. For examining purposes, claim language will be interpreted as the detectors of the interrupter switches transmit a signal that indicates a proportional amount of detected light.

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In claim 8 line 2, claim 9 line 2, claim 25 line 4, and claim 27 line 26, the claim language recites "an indication from the interrupter switch", however it is unclear which interrupter switch applicant is referring to since claim 1 recites there are at least two interrupter switches. Perhaps applicant intended the claim language to recite "an indication from one of the interrupter switches"? Please clarify.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1, 4, 5, 7, 18, 23 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by McAllister et al. (US 6,483,105). Hereinafter, McAllister et al. will be referred to as McAllister.

With respect to claims 1, 4, 5 and 26, McAllister discloses in Figs. 3 and 4, a rotary actuator (28) comprising an electrical motor (32) that rotates an input shaft (motor shaft - 36) connected to an output device (gearbox - 26) via a gear train (38), an interrupter vane (optical encoder - 44) connected to the output device via the motor and gear train and adapted to travel in a path corresponding to the movement of the output device, and two interrupter switches (60) that are spaced apart from one another wherein each interrupter switch comprises a light emitter (56) and a photodetector (54)

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and an interrupter channel (gap between the source and detector) aligned between the source and the detector wherein the interrupter vane is positioned within the interrupter channel. McAllister further discloses the inclusion of a controller (48) connected to the interrupter switches for powering the motor in response to a command signal (demand signal) (col. 6, lines 19-27, 47-48). McAllister fails to expressly disclose the controller is connected to a power supply, however a power supply is needed to power the controller. McAllister discloses the controller is configured or programmed to operate the motor between minimum and maximum rotary positions as detected by the encoder. In Fig. 5, McAllister further discloses calibrating the actuator. Calibration occurs by pushing a switch to rotate the chopper until the output shaft is at a minimum position. The same switch is then pushed again to re-engage the motor re-position the output shaft to the other rotary position. Thus, the motor must stop once it has reached one of the desired positions to await the pushing of the switch for re-positioning. Further the controller would know via pulse signal analysis of the signals from the detectors when the chopper would be at a minimum or a maximum position (travel limits). Thus, the controller must de-energize the motor in response to the pulse analysis based on the detected signals when the chopper is at a maximum or minimum position. Note, in claim 26, although the system of McAllister is not directed towards an airplane, applicant's claim language does not provide any structural limitations limiting the system to an airplane - therefore, the limitation in the preamble of the system as recited is directed towards an intended use of the system, and hence, cannot be given patentable weight.

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With respect to claim 7, McAllister discloses in Fig. 4, a chopper (52) acts as a shutter that interrupts the corresponding optical paths between the emitters and detectors for 180° per turn and produces a corresponding pulse signal for analysis by the controller. Thus, the signal is indicative of the amount of light detected, if any.

With respect to claim 18, claim language fails to include any structural limitation for the actuator being in an aerospace environment, thus the actuator being adapted for aerospace service is deemed intended use.

With respect to claim 23, McAllister discloses the motor is supplied with electrical power and interrupting the electrical power engages the brake rotor (braking) and promptly stops the motor (de-energizing the motor). McAllister further discloses that the controller operates the motor via software, thus would operate to turn off the motor, or de-energize the motor, as well.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 3, 6, 16, 17, 19, 20 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over McAllister.

With respect to claim 2, 16 and 17, McAllister discloses in Figs. 3 and 4, a rotary actuator (28) comprising an electrical motor (32) that rotates an input shaft (motor shaft - 36) connected to an output device (control shaft - 42) via a gear train (38), an interrupter vane (optical encoder - 44) adapted to travel in a path corresponding to the movement of the output device, and two interrupter switches (60) that are spaced apart from one another wherein each interrupter switch comprises a light emitter (56) and a photodetector (54) and an interrupter channel (gap between the source and detector) aligned between the source and the detector wherein the interrupter vane is positioned within the interrupter channel. McAllister further discloses the output device having an output shaft (40). McAllister discloses in Fig. 4, interrupter switches (60) being spaced 90° apart. McAllister fails to disclose the interrupter vane connected to the output device and radially extended from the output shaft, however it would have been an obvious design choice to one of ordinary skill in the art to position the encoder to be connected to the output device instead of the motor shaft since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70. With the rearrangement of parts, McAllister would still be able to determine the rotary position of the motor shaft. McAllister further discloses the inclusion of a controller (48) connected to the interrupter switches for powering the motor in response to a command signal (demand signal) (col. 6, lines 19-27, 47-48). McAllister fails to expressly disclose the controller is connected to a power supply, however a power supply is needed to power the controller McAllister discloses the controller is configured or programmed to operate the motor between minimum and maximum rotary positions

as detected by the encoder. In Fig. 5, McAllister further discloses calibrating the actuator. Calibration occurs by pushing a switch to rotate the chopper until the output shaft is at a minimum position. The same switch is then pushed again to re-engage the motor re-position the output shaft to the other rotary position. Thus, the motor must stop once it has reached one of the desired positions to await the pushing of the switch for re-positioning. Further the controller would know via pulse signal analysis of the signals from the detectors when the chopper would be at a minimum or a maximum position (travel limits). Thus, the controller must de-energize the motor in response to the pulse analysis based on the detected signals when the chopper is at a maximum or minimum position.

With respect to claim 3, McAllister addresses all the limitations of claim 1. McAllister illustrates in Fig. 3, the output device (gearbox - 26) has a linear path, however fails to expressly disclose the actuator comprising a linear actuator. It would have been an obvious design choice to a person of ordinary skill in the art to modify the rotary actuator to be a linear actuator since the technologies of the two are interchangeable.

With respect to claim 6, McAllister addresses all the limitations of claims 1 and 5, however fails to expressly disclose the LED emits infrared light. It would have been an obvious design choice to a person of ordinary skill in the art to modify the LED so that it emits primarily infrared light since using infrared light is already well known in the art of encoders.



With respect to claim 19, McAllister addresses all the limitations of claim 1, however fails to expressly disclose the motor is an AC motor. McAllister does disclose the motor is an electric motor which can be an AC motor. Thus since the motor does not have to be an AC motor, then it would have to be a DC motor to still remain an electric motor. It would have been an obvious design choice to make the motor either AC or DC since applicant has not discloses that having the motor be a DC motor solves any state problem or is for any particular purpose and it appears that the invention would perform equally well with an AC motor.

With respect to claim 20, the modified McAllister addresses all the limitations of claim 2, however fails to expressly disclose the gear train comprising planetary gears. It would have been an obvious design choice to a person of ordinary skill in the art to modify the gear train to comprise planetary gears in order to increase the gear ratio.

With respect to claim 24, McAllister addresses all the limitations of claims 1 and 23. McAllister discloses the braking occurs by the termination of magnetic coupling between a rotor armature and a stator winding, however fails to expressly disclose the braking is performed by shortening together terminals of the motor. Nevertheless, it would have been an obvious design choice to modify how the braking is performed so long as an appropriate braking can be performed.

***Allowable Subject Matter***

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Claims 10-15, 21 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 8, 9, 25 and 27 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

With respect to claim 8, prior art fails to teach or reasonably suggest the controller de-energizes the motor in response to an indication from the interrupter switch that a predetermined amount of source emission is detected and that amount is less than a full source emission.

With respect to claim 10, prior art fails to teach or reasonably suggest the controller is adapted to energize the motor with a first voltage when the output device is located in a first limit position and to energize the motor with a second voltage when the output device is located in a second limit position.

With respect to claim 14, prior art fails to teach or reasonably suggest a position indicator corresponding to each interrupter switch.

With respect to claim 21, prior art fails to teach or reasonably suggest the output device having a linear motion actuated by a first screw and the interrupter vane actuated by a second screw.

With respect to claim 25, prior art fails to teach or reasonably suggest the controller is adapted to initiate dynamic braking in response to an indication from the interrupter switch that a predetermined amount of source emission is detected and that

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amount is less than a full source emission and closer to a no source emission than a full source emission.


Claims not specifically addressed would be allowable due to their dependency.

***Telephone/Fax Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Suez Ellis whose telephone number is (571) 272-2868. The examiner can normally be reached on 8:30am-5pm (Monday-Friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on (571) 272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Stephone B. Allen  
Primary Examiner